



DEVELOPMENT OF EVOLUTION INCLUSIONS GOVERNED BY TIME-DEPENDENT SUBDIFFERENTIALS AND NEW PERSPECTIVES

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Abstract. This is a survey of the development of time-dependent evolution inclusions since 1965, and some perspectives on new aspects.

The survey begins with the time-dependence conditions on subdifferentials $\partial\varphi^t(\cdot)$ of convex functions $\varphi^t(\cdot)$ on a Hilbert space H which guarantees the well-posedness of evolution inclusion

$$(E) \quad \frac{du(t)}{dt} + \partial\varphi^t(u(t)) \ni f(t) \text{ in } H, t > 0.$$

Moreover, as to parameterized class of convex functions $\varphi^t(\theta; \cdot)$ with parameter $\theta \in \Theta$, Θ being a complete metric space, we explain why it was introduced in the theory of evolution inclusions and how the time-dependence of $\varphi^t(\cdot)$ was weakened. This class seems to be the weakest one for the well-posedness of (E). We expect that this class will be used to solve various physical/mechanical problems in a weak variational sense. In this respect we mention some perspectives on the weak solvability of nonlinear parabolic evolution inclusions.

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